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论文

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特异热环境下人体热调节的生物传热学问题

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BIOLOGICAL HEAT TRANSFER PROBLEMS OF HUMAN THERMALREGULATION SYSTEM IN EXTREME THERMAL ENVIRONMENT

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摘要

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摘要 分析了影响人体热调节的航空航天特异热环境因素,着重讨论了该环境下人体热调节仿真的生物传热学问题。文中给出了人体血液换热、热/振动复合环境下的生物热方程、着装有关主动热控功能的传热边界条件问题等的研究结果,并提出今后应关注微重力环境对人体热调节影响研究的建议。

关键词: 人体热调节 生物传热学 人体血液换热 振动 液冷服 通风 失重环境

Abstract: The factors affecting the performance of human thermalregulation system in extreme thermal environment are analysed. Meanwhile, biological heat transfer problems concerning human thermalregulation simulation are studied. We obtain the results on human blood heat transfer, biological governing equations under the heat/vibration conditions, the heat transfer boundary conditions of clothes with active thermal control and so on. Based on the results, we suggest to focus the effort on the human thermalregulation system under micro gravity condition in future studies.

Keywords: human thermalregulation system biological heat transfer human blood heat transfer vibration liquidcooling garment ventilation micro2gravity condition

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